

		I.		II.				I.		II.	
		(878°40)		(870°31)				(878°40)		(870°31)	
		h	m	h	m			h	m	h	m
1886						1886					
July	3	9	54	15	27.0	July	20	14	17.9	14	34.2
	4	14	36.3	11	18.6		21	9	58.5	10	25.8
	5	10	16.9	7	10.1		22	5	39.1	6	17.4
	6	5	57.4	12	57.5		23	11	10.0	12	4.8
	7	11	28.3	8	49.0		24	6	50.7	7	56.4
	8	7	8.9	14	36.4		25	12	21.6	13	43.8
	9	12	39.8	10	27.9		26	8	2.2	9	35.4
	10	8	20.4	6	19.5		27	13	33.1	5	27.0
	11	13	51.3	12	6.9		28	9	13.8	11	14.4
	12	9	31.9	7	58.4		29	14	44.7	7	6.0
	13	5	12.5	13	45.8		30	10	25.3	12	53.4
	14	10	43.4	9	37.4		31	6	5.9	8	45.0
	15	6	24.0	5	28.9	Aug.	1	11	36.9	14	32.4
	16	11	54.9	11	16.3		2	7	17.5	10	24.0
	17	7	35.5	7	7.9		3	12	48.5	6	15.6
	18	13	6.4	12	55.3		4	8	29.1	12	3.0
	19	8	47.0	8	46.9						

Ephemerides of the Satellites of Saturn, 1885-86. By A. Marth.

(Continued from page 462.)

Differences of Right Ascension and Declination between the three outer Satellites and the Centre of Saturn.

		Titan.		Hyperion.		Iapetus.	
		$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
o ^h Gr.	1885.						
Dec.	I	- 4.79	- 92.3	+ 6.65	+ 102.8	+ 24.83	- 49.4
	2	+ 0.83	- 89.8	+ 1.05	+ 100.1	+ 27.61	- 37.0
	3	+ 6.34	- 74.5	- 4.67	+ 86.3	30.22	- 24.3
	4	+ 10.95	- 48.5	- 9.83	+ 62.1	+ 32.65	- 11.4
	5	+ 13.96	- 15.3	- 13.76	+ 30.2	34.88	+ 1.6
	6	+ 14.87	+ 20.2	- 15.96	- 5.7	+ 36.91	+ 14.6
	7	+ 13.47	+ 52.6	- 16.22	- 41.1	38.72	27.6
	8	+ 9.90	+ 76.6	- 14.63	- 71.9	+ 40.30	+ 40.6
	9	+ 4.70	+ 88.0	- 11.51	- 95.5	41.65	53.4
	10	- 1.30	+ 84.7	- 7.36	- 110.3	+ 42.74	+ 65.8
	11	- 7.09	+ 67.1	- 2.56	- 115.9	43.57	77.9
	12	- 11.71	+ 38.3	+ 2.45	- 112.8	+ 44.14	+ 89.7
		R R					

o ^b Gr. 1885. Dec.	<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
	$\alpha_s - A$ s	$\delta_s - D$ "	$\alpha_s - A$ s	$\alpha_s - D$ "	$\alpha_s - A$ s	$\delta_s - D$ "
13	-14.44	+ 3.2	+ 7.30	- 101.7	+ 44.45	+ 100.9
14	-14.89	- 32.5	+ 11.67	- 83.9	+ 44.50	+ 111.6
15	-13.07	- 63.3	+ 15.30	- 60.7	44.27	121.6
16	- 9.31	- 84.9	+ 17.98	- 33.7	+ 43.77	+ 131.0
17	- 4.20	- 94.3	+ 19.52	- 4.5	43.01	139.6
18	+ 1.51	- 90.2	+ 19.80	+ 25.1	+ 41.99	+ 147.3
19	+ 7.01	- 73.4	+ 18.72	+ 52.9	40.71	154.2
20	+ 11.50	- 46.0	+ 16.28	+ 76.9	+ 39.18	+ 160.2
21	+ 14.31	- 11.8	+ 12.54	+ 94.8	37.41	165.2
22	+ 14.96	+ 24.2	+ 7.69	+ 104.3	+ 35.41	+ 169.2
23	+ 13.27	+ 56.3	+ 2.10	+ 103.6	33.19	172.2
24	+ 9.45	+ 79.5	- 3.71	+ 91.6	+ 30.75	+ 174.2
25	+ 4.07	+ 89.5	- 9.07	+ 68.9	28.12	175.0
26	- 2.00	+ 84.5	- 13.30	+ 37.5	+ 25.32	+ 174.7
27	- 7.73	+ 65.3	- 15.84	+ 1.3	22.36	173.3
28	- 12.18	+ 35.2	- 16.42	- 35.1	+ 19.26	+ 170.8
29	- 14.65	- 0.6	- 15.11	- 67.5	16.03	167.2
30	- 14.82	- 36.4	- 12.21	- 92.9	+ 12.70	+ 162.5
31	- 12.73	- 66.7	- 8.14	- 109.6	9.29	156.7
1886. Jan. 1	- 8.77	- 87.2	- 3.38	- 117.0	+ 5.82	+ 149.9
2	- 3.53	- 95.2	+ 1.66	- 115.3	+ 2.31	142.1
3	+ 2.20	- 89.6	+ 6.57	- 105.4	- 1.21	+ 133.3
4	+ 7.62	- 71.3	+ 11.05	- 88.5	4.72	123.6
5	+ 11.94	- 42.8	+ 14.81	- 65.9	- 8.20	+ 113.1
6	+ 14.50	- 8.0	+ 17.65	- 39.1	11.61	101.8
7	+ 14.86	+ 27.9	+ 19.37	- 9.9	- 14.94	+ 89.7
8	+ 12.91	+ 59.5	+ 19.84	+ 19.9	18.16	77.0
9	+ 8.88	+ 81.4	+ 18.99	+ 48.4	- 21.26	+ 63.8
10	+ 3.39	+ 89.9	+ 16.75	+ 73.3	24.21	50.1
11	- 2.66	+ 83.3	+ 13.22	+ 92.5	- 26.98	+ 36.1
12	- 8.26	+ 62.7	+ 8.56	+ 103.7	29.56	21.8
13	- 12.49	+ 31.7	+ 3.10	+ 104.9	- 31.92	+ 7.3
14	- 14.69	- 4.4	- 2.68	+ 95.0	34.06	- 7.3
15	- 14.58	- 39.8	- 8.12	+ 74.2	- 35.95	- 21.8
16	- 12.26	- 69.2	- 12.55	+ 44.1	37.59	36.2
17	- 8.14	- 88.5	- 15.38	+ 8.6	- 38.96	- 50.3
18	- 2.85	- 94.9	- 16.29	- 28.1	40.05	64.1
19	+ 2.83	- 88.0	- 15.30	- 61.5	- 40.85	- 77.4

Sup. 1885.

Satellites of Saturn, 1885-86.

515

		<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
oh Gr.		$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
1886.							
Jan.	20	+ 8.10	- 68.5	- 12.66	- 58.3	- 41.36	- 90.2
	21	+ 12.20	- 39.3	- 8.80	- 106.5	- 41.57	- 102.4
	22	+ 14.50	- 4.3	- 4.18	- 115.6	41.49	113.8
	23	+ 14.60	+ 31.2	+ 0.77	- 115.5	- 41.12	- 124.4
	24	+ 12.42	+ 61.7	+ 5.66	- 107.2	40.46	134.2
	25	+ 8.25	+ 82.3	+ 10.16	- 91.6	- 39.52	- 143.0
	26	+ 2.73	+ 89.2	+ 14.00	- 70.1	38.30	150.8
	27	- 3.24	+ 81.2	+ 16.95	- 44.2	- 36.81	- 157.5
	28	- 8.65	+ 59.6	+ 18.83	- 15.7	35.07	163.2
	29	- 12.60	+ 28.2	+ 19.51	+ 13.8	- 33.10	- 167.7
	30	- 14.55	- 7.8	+ 18.89	+ 42.3	30.91	171.0
	31	- 14.20	- 42.4	+ 16.95	+ 67.7	- 28.51	- 173.2
Feb.	1	- 11.71	- 70.7	+ 13.72	+ 87.9	25.92	174.2
	2	- 7.51	- 88.5	+ 9.34	+ 100.7	- 23.16	- 174.0
	3	- 2.23	- 93.6	+ 4.12	+ 104.0	20.26	172.7
	4	+ 3.34	- 85.5	- 1.51	+ 96.5	- 17.24	- 170.2
	5	+ 8.43	- 65.3	- 6.93	+ 78.1	14.11	166.6
	6	+ 12.29	- 35.8	- 11.50	+ 50.3	- 10.89	- 161.9
	7	+ 14.33	- 1.1	- 14.60	+ 16.2	7.62	156.1
	8	+ 14.21	+ 33.6	- 15.86	- 19.9	- 4.31	- 149.4
	9	+ 11.88	+ 62.9	- 15.21	- 53.6	- 0.98	141.7
	10	+ 7.64	+ 82.1	- 12.98	- 81.4	+ 2.35	- 133.2
	11	+ 2.16	+ 87.6	- 9.43	- 101.2	5.65	123.8
	12	- 3.67	+ 78.5	- 5.05	- 112.0	+ 8.90	- 113.6
	13	- 8.86	+ 56.3	- 0.27	- 113.8	12.08	102.8
	14	- 12.58	+ 24.9	+ 4.51	- 107.3	+ 15.18	- 91.4
	15	- 14.27	- 10.4	+ 8.97	- 93.5	18.18	79.4
	16	- 13.74	- 44.1	+ 12.84	- 73.8	+ 21.05	- 67.0
	17	- 11.15	- 71.0	+ 15.90	- 49.4	23.78	54.2
	18	- 6.93	- 87.6	+ 17.96	- 22.1	+ 26.36	- 41.1
	19	- 1.73	- 91.6	+ 18.88	+ 6.5	28.78	27.8
	20	+ 3.69	- 82.6	+ 18.56	+ 34.6	+ 31.02	- 14.4
	21	+ 8.57	- 62.0	+ 16.96	+ 60.2	33.06	- 1.0
	22	+ 12.21	- 32.7	+ 14.11	+ 81.2	+ 34.90	+ 12.5
	23	+ 14.05	+ 1.4	+ 10.11	+ 95.5	36.53	25.9
	24	+ 13.76	+ 35.0	+ 5.22	+ 101.1	+ 37.95	+ 39.0
	25	+ 11.32	+ 63.1	- 0.17	+ 96.4	39.14	51.8
	26	+ 7.10	+ 80.9	- 5.51	+ 81.0	+ 40.09	+ 64.3

R R 2

		<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
oh Gr. 1886		$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
Feb.	27	+ 1°71	+ 85°4	- 10°17	+ 56°1	+ 40°81	+ 76°4
	28	- 3°94	+ 75°6	- 13°54	+ 24°1	+ 41°29	+ 88°0
Mar.	1	- 8°92	+ 53°2	- 15°20	- 10°7	41°53	99°1
	2	- 12°42	+ 22°2	- 15°05	- 44°2	+ 41°52	+ 109°5
	3	- 13°92	- 12°3	- 13°22	- 72°7	41°28	119°3
	4	- 13°27	- 44°8	- 10°08	- 93°9	+ 40°80	+ 128°3
	5	- 10°63	- 70°5	- 6°03	- 106°5	40°09	136°5
	6	- 6°45	- 85°9	- 1°51	- 110°5	+ 39°16	+ 144°0
	7	- 1°37	- 89°0	+ 3°11	- 106°3	38°08	150°6
	8	+ 3°88	- 79°6	+ 7°51	- 95°0	+ 36°62	+ 156°3
	9	+ 8°56	- 59°0	+ 11°40	- 77°3	35°03	161°0
	10	+ 12°01	- 30°1	+ 14°57	- 54°9	+ 33°25	+ 164°8
	11	+ 13°69	+ 3°1	+ 16°82	- 29°2	31°28	167°6
	12	+ 13°30	+ 35°6	+ 18°02	- 1°8	+ 29°14	+ 169°4
	13	+ 10°85	+ 62°5	+ 18°06	+ 25°6	26°84	170°2
	14	+ 6°66	+ 79°2	+ 16°87	+ 51°1	+ 24°38	+ 170°0
	15	+ 1°40	+ 82°9	+ 14°46	+ 72°8	21°79	168°7
	16	- 4°07	+ 72°7	+ 10°91	+ 88°6	+ 19°07	+ 166°5
	17	- 8°85	+ 50°5	+ 6°41	+ 96°5	16°26	163°2
	18	- 12°17	+ 20°2	+ 1°32	+ 94°9	+ 13°36	+ 159°0
	19	- 13°54	- 13°3	- 3°90	+ 83°0	10°39	153°9
	20	- 12°82	- 44°7	- 8°63	+ 61°4	+ 7°36	+ 147°8
	21	- 10°19	- 69°2	- 12°27	+ 32°3	4°31	140°8
	22	- 6°10	- 83°7	- 14°36	- 0°8	+ 1°24	+ 133°0
	23	- 1°16	- 86°3	- 14°72	- 33°6	- 1°84	124°4
	24	+ 3°93	- 76°7	- 13°43	- 62°7	- 4°88	+ 115°1
	25	+ 8°45	- 56°4	- 10°76	- 85°2	7°87	105°1
	26	+ 11°74	- 28°2	- 7°12	- 99°9	- 10°81	+ 94°4
	27	+ 13°31	+ 4°0	- 2°91	- 106°5	13°67	83°2
	28	+ 12°87	+ 35°5	+ 1°52	- 104°6	- 16°43	+ 71°6
	29	+ 10°44	+ 61°3	+ 5°83	- 95°8	19°07	59°6
	30	+ 6°34	+ 77°2	+ 9°75	- 80°8	- 21°57	+ 47°2
	31	+ 1°22	+ 80°3	+ 13°03	- 60°6	23°93	34°5
April	1	- 4°08	+ 70°1	+ 15°50	- 36°9	- 26°12	+ 21°7
	2	- 8°69	+ 48°3	+ 17°01	- 11°0	28°14	+ 8°8
	3	- 11°87	+ 18°7	+ 17°44	+ 15°5	- 29°96	- 4°0
	4	- 13°15	- 13°7	+ 16°70	+ 40°8	31°57	16°7
	5	- 12°43	- 44°0	+ 14°77	+ 63°3	- 32°97	- 29°3

oh Gr. 1886.	Titan.		Hyperion.		Iapetus.	
	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
Apr. 6	- 9.85	- 67.6	+ 11.72	+ 80.5	- 34.15	- 41.6
7	- 5.87	- 81.4	+ 7.66	+ 90.8	- 35.10	- 53.6
8	- 1.07	- 83.6	+ 2.98	+ 92.4	35.81	65.1
9	+ 3.87	- 74.2	- 2.07	+ 84.2	- 36.28	- 76.2
10	+ 8.25	- 54.4	- 6.86	+ 65.3	36.51	86.7
11	+ 11.43	- 26.9	- 10.78	+ 40.4	- 36.49	- 96.5
12	+ 12.94	+ 4.4	- 13.35	+ 9.5	36.24	105.7
13	+ 12.50	+ 34.9	- 14.29	- 22.5	- 35.75	- 114.1
14	+ 10.12	+ 59.8	- 13.58	- 51.8	35.02	121.7
15	+ 6.13	+ 75.0	- 11.46	- 75.6	- 34.07	- 128.5
16	+ 1.15	+ 77.9	- 8.27	- 92.3	32.90	134.4
17	- 4.00	+ 67.8	- 4.39	- 101.2	- 31.52	- 139.3
18	- 8.48	+ 46.6	- 0.19	- 102.4	29.94	143.4
19	- 11.56	+ 17.9	+ 4.01	- 96.3	- 28.18	- 146.5
20	- 12.82	- 13.6	+ 7.94	- 84.0	26.24	148.6
21	- 12.11	- 42.9	+ 11.35	- 66.4	- 24.14	- 149.8
22	- 9.62	- 65.7	+ 14.06	- 44.8	21.90	150.1
23	- 5.75	- 79.1	+ 15.90	- 20.6	- 19.53	- 149.4
24	- 1.08	- 81.2			17.04	147.7
25	+ 3.73	- 72.0			- 14.46	- 145.2
26	+ 7.99	- 52.8			11.80	141.8
27	+ 11.11	- 26.1			- 9.07	- 137.5
28	+ 12.60	+ 4.3			6.30	132.5
29	+ 12.19	+ 33.9			- 3.50	- 126.7
30	+ 9.89	+ 58.1			- 0.69	120.2
May 1	+ 6.02	+ 72.9			+ 2.12	- 112.9
2	+ 1.17	+ 75.5			4.91	105.0
3	- 3.85	+ 65.9			+ 7.66	- 96.7

Note on Stationary Radiant Points. By Richard A. Proctor.

It is hardly necessary for me to point out that the results indicated by Mr. Denning, in the June number of the *Notices*, with regard to meteoric velocities, and his supposed recognition of stationary radiants, are not congruous. A radiant really stationary for three or four months, or varying only by a degree or so in that time, implies of necessity a velocity of meteoric motion many times greater than the velocity of the earth in her orbit.